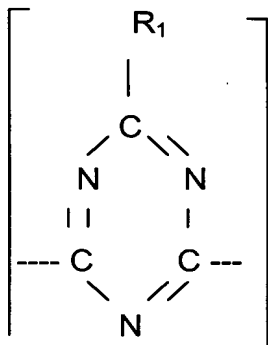


## Claims

1. Amino resin moulding materials for products with improved flexibility, characterised in that the amino resin moulding materials consist of mixtures of meltable 20 to 1000 nuclei polytriazine ethers, wherein in the polytriazine ethers the triazine segments

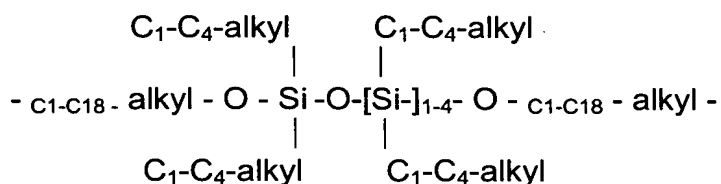


$R_1 = -NH_2, -NH-CHR_2-O-R_3, -NH-CHR_2-O-R_4-OH, -OH, \text{phthalimido-},$   
 $\text{succinimido-}, -NH-CHR_2-O-R_4-O-CHR_2-NH-, -NH-CHR_2-NH-, -NH-CHR_2-O-CHR_2-$   
 $NH-,$

$R_2 = H, C_1-C_7 - \text{alkyl};$

$R_3 = C_1-C_{18} - \text{alkyl}, H;$

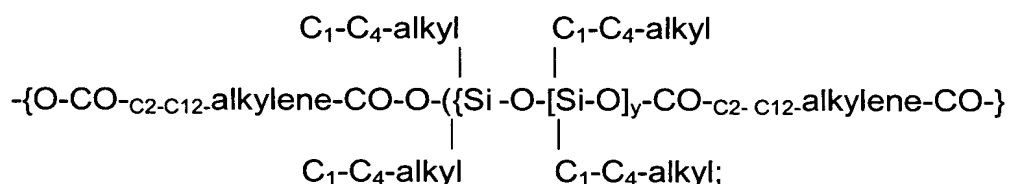
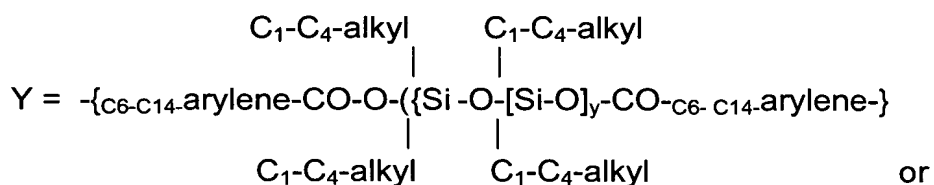
$R_4 = C_2-C_{18}\text{-alkylene}, -CH(CH_3)-CH_2-O-C_2-C_{12}\text{-alkylene-O-CH}_2\text{-CH(CH}_3\text{)-},$   
 $-CH(CH_3)-CH_2-O-C_2-C_{12}\text{-arylene-O-CH}_2\text{-CH(CH}_3\text{)-},$   
 $-[CH_2-CH_2-O-CH_2-CH_2]_n-, -[CH_2-CH(CH_3)-O-CH_2-CH(CH_3)]_n-, -[-O-CH_2-CH_2-$   
 $CH_2-CH_2-]_n-,$   
 $-[(CH_2)_{2-8}-O-CO-C_6-C_{14}\text{-arylen-CO-O-(CH}_2\text{)}_{2-8}]_n-,$   
 $-[(CH_2)_{2-8}-O-CO-C_2-C_{12}\text{-alkylen-CO-O-(CH}_2\text{)}_{2-8}]_n-,$   
 wherein  $n = 1 \text{ bis } 200;$   
 - siloxane groups containing sequences of the type



- siloxane groups containing polyester sequences of the type  $-\text{[(X)}_r\text{-O-CO-(Y)}_s\text{-CO-O-(X)}_r\text{)]-}$ ,

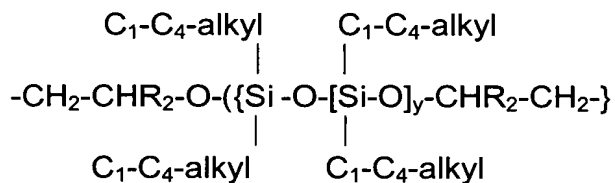
wherein

$\text{X} = \{(\text{CH}_2)_{2-8}\text{-O-CO-C}_{6\text{-C}_{14}\text{-arylene-CO-O-(CH}_2)_{2-8}\}$  or  
 $\{(\text{CH}_2)_{2-8}\text{-O-CO-C}_{2\text{-C}_{12}\text{-alkylene-CO-O-(CH}_2)_{2-8}\}$ ;



$r = 1 \text{ to } 70$ ;  $s = 1 \text{ to } 70$  and  $y = 3 \text{ to } 50$ ;

- siloxane groups containing polyether sequences of the type



wherein  $\text{R}_2 = \text{H}$ ;  $\text{C}_1\text{-C}_4\text{-alkyl}$  and  $y = 3 \text{ to } 50$ ;

- sequences based on alkylene oxide adducts of melamine of the type  
 2-amino-4,6-di- $\text{C}_{2\text{-C}_4\text{-alkylene-amino-1,3,5-triazine}}$  sequences:

- phenolic ether sequences based on bivalent phenols and C<sub>2</sub>-C<sub>8</sub> diols of the type

-C<sub>2</sub>-C<sub>8</sub>-alkylene-O-C<sub>6</sub>-C<sub>18</sub>-arylene-O-C<sub>2</sub>-C<sub>8</sub>-alkylene sequences;

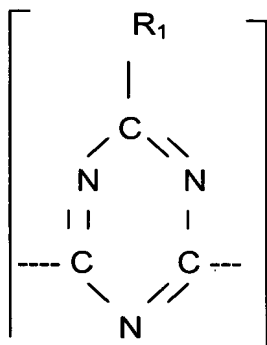
are combined through bridging members -NH-CHR<sub>2</sub>-O-R<sub>4</sub>-O-CHR<sub>2</sub>-NH- and -NH-CHR<sub>2</sub>-NH- and optionally -NH-CHR<sub>2</sub>-O-CHR<sub>2</sub>-NH- to 20 to 1000 nuclei polytriazine ethers with linear and/or branched structure,

wherein in the polytriazine ethers the molar ratio of the substituents is R<sub>3</sub> : R<sub>4</sub> = 20 : 1 to 1 : 20,

the proportion of the combinations of the triazine segments through bridging members -NH-CHR<sub>3</sub>-O-R<sub>4</sub>-O-CHR<sub>3</sub>-NH- is 5 to 95 mol%,

and wherein the amino resin moulding materials can contain up to 75 mass% fillers and / or absorber materials, up to 50 mass% further reactive polymers of the type ethylene copolymers, maleic acid anhydride copolymers, modified maleic acid anhydride copolymers, poly(meth)acrylates, polyamides, polyesters and/or polyurethanes, up to 20 mass% diols of the type HO-R<sub>4</sub>-OH and up to 5 mass%, in particular up to 2 mass% stabilisers, UV absorbers, hardening agents and/or auxiliary substances.

2. Amino resin moulding materials according to Claim 1, characterised in that the polytriazine ethers are 30 to 300 nuclei polytriazine ethers.
3. Amino resin moulding materials according to Claim 1 or 2, characterised in that the polytriazine ethers in the mixtures are polytriazine ethers with R<sub>2</sub> = H.
4. Process for the production of amino resin moulding materials, characterised in that the amino resin moulding materials which consist of mixtures of meltable 20 to 1000 nuclei polytriazine ethers,  
wherein in the polytriazine ethers the triazine segments



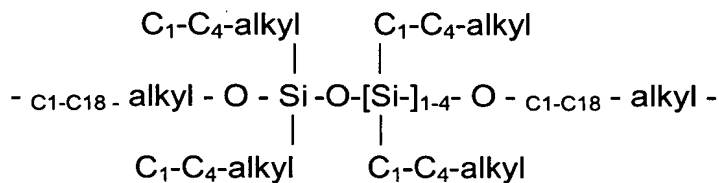
$R_1 = -NH_2, -NH-CHR_2-O-R_3, -NH-CHR_2-O-R_4-OH, -OH, \text{phthalimido-}, \text{succinimido-},$   
 $-NH-CHR_2-O-R_4-O-CHR_2-NH-, -NH-CHR_2-NH-, -NH-CHR_2-O-CHR_2-NH-,$

$R_2 = H, C_1-C_7 - \text{alkyl};$

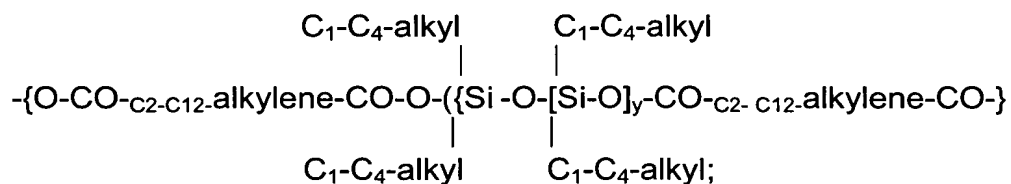
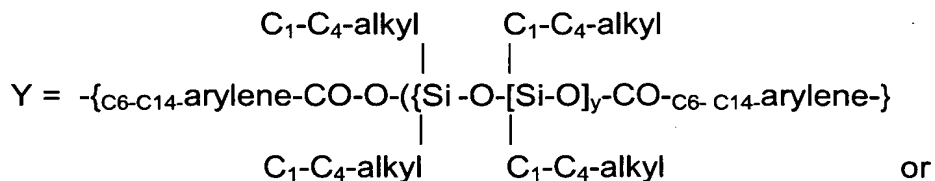
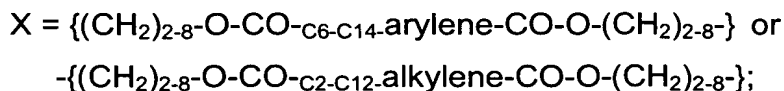
$R_3 = C_1-C_{18} - \text{alkyl}, H;$

$R_4 = C_2-C_{18}\text{-alkylene}, -CH(CH_3)-CH_2-O-C_2-C_{12}\text{-alkylene-O-CH}_2-CH(CH_3)-,$   
 $-CH(CH_3)-CH_2-O-C_2-C_{12}\text{-arylene-O-CH}_2-CH(CH_3)-,$   
 $-[CH_2-CH_2-O-CH_2-CH_2]_n-, -[CH_2-CH(CH_3)-O-CH_2-CH(CH_3)]_n-, -[-O-CH_2-CH_2-$   
 $CH_2-CH_2-]_n-,$   
 $-[(CH_2)_{2-8}-O-CO-C_6-C_{14}\text{-arylene-CO-O-(CH}_2)_{2-8}-]_n-,$   
 $-[(CH_2)_{2-8}-O-CO-C_2-C_{12}\text{-alkylene-CO-O-(CH}_2)_{2-8}-]_n-,$   
 wherein  $n = 1$  to  $200$ ;

- siloxane groups containing sequences of the type

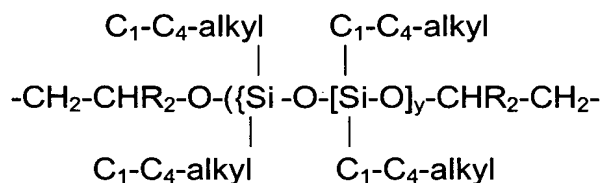


- siloxane groups containing polyester sequences of the type  $-(X)_r-O-CO-(Y)_s-$   
 $CO-O-(X)_r-$ ,  
 wherein



$r = 1 \text{ to } 70; \quad s = 1 \text{ to } 70 \quad \text{and} \quad y = 3 \text{ to } 50;$

- siloxane groups containing polyether sequences of the type



wherein  $R_2 = \text{H}; \text{C}_1\text{-C}_4\text{-alkyl}$  and  $y = 3 \text{ to } 50;$

- sequences based on alkylene oxide adducts of melamine of the type  
2-amino-4,6-di- $\text{C}_2\text{-C}_4\text{-alkylene-amino-1,3,5-triazine}$  sequences:

- phenolic ether sequences based on bivalent phenols and  $\text{C}_2\text{-C}_8$  diols of the type



are combined through bridging members  $\text{-NH-CHR}_2\text{-O-R}_4\text{-O-CHR}_2\text{-NH-}$  and  $\text{-NH-CHR}_2\text{-NH-}$  and optionally  $\text{-NH-CHR}_2\text{-O-CHR}_2\text{-NH-}$  to 20 to 1000 nuclei polytriazine ethers with linear and/or branched structure,

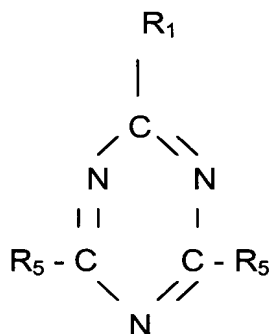
wherein in the polytriazine ethers the molar ratio of the substituents is  $R_3 : R_4 = 20 : 1$  to  $1 : 20$ ,

the proportion of the combinations of the triazine segments through bridging members  $-NH-CHR_3-O-R_4-O-CHR_3-NH-$  is 5 to 95 mol%,

and wherein the amino resin moulding materials can contain up to 75 mass% fillers, up to 50 mass% further reactive polymers of the type ethylene copolymers, maleic acid anhydride copolymers, modified maleic acid anhydride copolymers, poly(meth)acrylates, polyamides, polyesters and/or polyurethanes, up to 20 mass% diols of the type  $HO-R_4-OH$ , and up to 2 mass% stabilisers, UV absorbers and/or auxiliary substances,

are produced according to a multi-step process wherein

- in the first step of the process precondensates of  $C_1-C_8$  aldehydes and triazine derivatives of the structure



$R_1 = -NH_2, -NH-CHR_2-OH, -OH, \text{phthalimido-}, \text{succinimido-},$

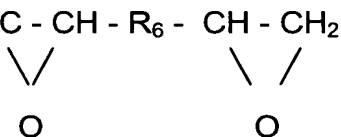
$R_2 = H, C_1-C_7 - \text{alkyl};$

$R_5 = -NH-CHR_2-OH$

are etherified through conversion with  $C_1-C_8$  alcohols in neutral to weak acid medium at 25 to 150°C and 0.1 to 5 bars, and the substituted triazine derivatives are conditioned with standing times of 5 to 15 min at 150 to 250°C and 0.1 to 15 bars wherein salts formed can be separated off while maintaining a pH value of 7 to 10 in that the melt of the amino triazine ethers at 70 to 150°C

in 70 to 150 mass%, in relation to the amino triazine ether, C<sub>3</sub> to C<sub>6</sub> alcohols is dissolved, insoluble proportions are separated off after cooling to 15 to 40°C, and the added C<sub>3</sub> bis C<sub>6</sub> alcohols are vaporised at 70 to 140°C to a remaining content of 5 to 20 mass%,

- in the second step of the process the C<sub>1</sub>-C<sub>8</sub>-alkyl-oxa-C<sub>1</sub>-C<sub>8</sub>-alkylene-amino-substituted triazine derivatives obtained are, through partial re-etherification with diols of the type HO-R<sub>4</sub>-OH and/or partial conversion with bisepoxides of the type

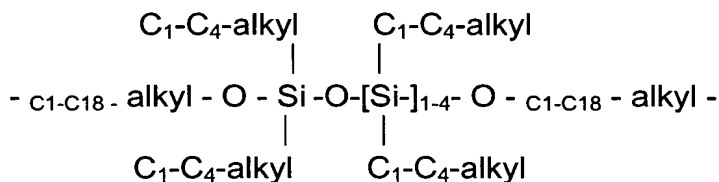


wherein R<sub>4</sub>

- C<sub>2</sub>-C<sub>18</sub>-alkylene, -[CH<sub>2</sub>-CH<sub>2</sub>-O-CH<sub>2</sub>-CH<sub>2</sub>]<sub>n</sub>-,
- [CH<sub>2</sub>-CH(CH<sub>3</sub>)-O-CH<sub>2</sub>-CH(CH<sub>3</sub>)]<sub>n</sub>-,
- [-O-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>]<sub>n</sub>-,
- [(CH<sub>2</sub>)<sub>2-8</sub>-O-CO-C<sub>6</sub>-C<sub>14</sub>-arylene-CO-O-(CH<sub>2</sub>)<sub>2-8</sub>]<sub>n</sub>-,
- [(CH<sub>2</sub>)<sub>2-8</sub>-O-CO-C<sub>2</sub>-C<sub>12</sub>-alkylene-CO-O-(CH<sub>2</sub>)<sub>2-8</sub>]<sub>n</sub>-,

wherein n = 1 to 200;

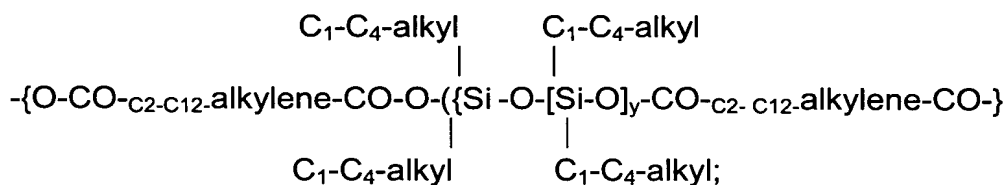
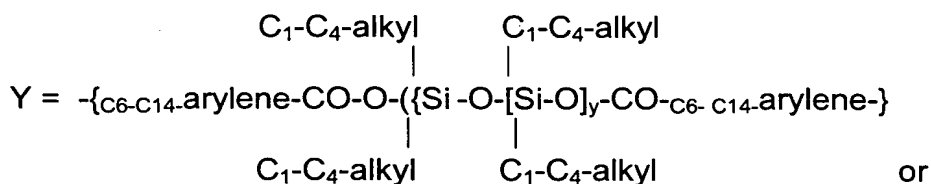
- siloxane groups containing sequences of the type



- siloxane groups containing polyester sequences of the type -[(X)<sub>r</sub>-O-CO-(Y)<sub>s</sub>-CO-O-(X)<sub>r</sub>]- ,

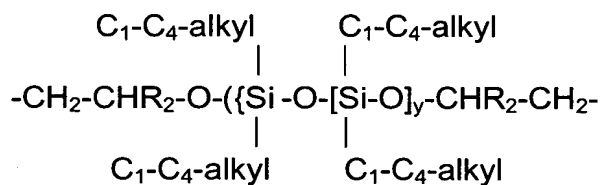
wherein

- X = {(CH<sub>2</sub>)<sub>2-8</sub>-O-CO-C<sub>6</sub>-C<sub>14</sub>-arylene-CO-O-(CH<sub>2</sub>)<sub>2-8</sub>} or
- {(CH<sub>2</sub>)<sub>2-8</sub>-O-CO-C<sub>2</sub>-C<sub>12</sub>-alkylene-CO-O-(CH<sub>2</sub>)<sub>2-8</sub>};



$r = 1$  to  $70$ ;  $s = 1$  to  $70$  and  $y = 3$  to  $50$ ;

- siloxane groups containing polyether sequences of the type



wherein  $R_2 = \text{H}$ ;  $\text{C}_1\text{-C}_4\text{-alkyl}$  and  $y = 3$  to  $50$ ;

- sequences based on alkylene oxide adducts of melamine of the type  
2-amino-4,6-di- $\text{C}_2\text{-C}_4\text{-alkylene-amino-1,3,5-triazine}$  sequences:

- phenolic ether sequences based on bivalent phenols and  $\text{C}_2\text{-C}_8$  diols of the type

$-\text{C}_2\text{-C}_8\text{-alkylene-O-C}_6\text{-C}_{18}\text{-arylene-O-C}_2\text{-C}_8\text{-alkylene}$  sequences;

and  $R_6 = -\text{CH}_2\text{-O-C}_2\text{-C}_{12}\text{-alkylene-O-CH}_2-$ ,  $-\text{CH}_2\text{-O-C}_6\text{-C}_{14}\text{-arylene-O-CH}_2-$ ,

and wherein in the partial conversion with diols and/or bisepoxides mixtures can be used which contain 70 mass%  $\text{C}_5\text{-C}_{18}$  alcohols,



converted into the corresponding substituted triazine derivatives with standing times of 1 to 60 min with distilling of C<sub>1</sub>-C<sub>8</sub> alcohols at 60 to 250°C/0.05 to 1 bar wherein through the molar ratio C<sub>1</sub>-C<sub>8</sub>-alkyl-oxa-C<sub>1</sub>-C<sub>8</sub>-alkylene-amino groups / diol used and/or bisepoxide used of 20 : 1 to 1.1 : 1 a partial re-etherification of the C<sub>1</sub>-C<sub>8</sub>-alkyl ether groups of the C<sub>1</sub>-C<sub>8</sub>-alkyl-oxa-C<sub>1</sub>-C<sub>8</sub> alkylene amino triazines is achieved,

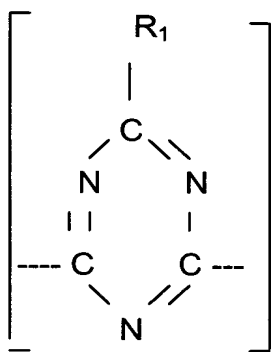
- in the third step of the process for the further condensation of the amino triazine ethers to polytriazine ethers the melt obtained which contains etherified amino triazine derivatives and proportions of polytriazine ethers and unconverted or unseparated diol and furthermore can contain C<sub>5</sub>-C<sub>18</sub> alcohols is dosed into a kneader, converted with a standing time of 2 to 12 min at 140 to 220°C with degassing and the polytriazine ethers are removed and granulated wherein the melt, before dosing into the kneader, can be subjected to tempering of 20 to 120 min at 70 to 140°C, up to 75 mass% fillers, further reactive polymers of the type ethylene copolymers, maleic acid anhydride copolymers, modified maleic acid anhydride copolymers, poly(meth)acrylates, polyamides, polyesters and/or polyurethanes and up to 2 mass%, each in relation to the polytriazine ethers, stabilisers, UV absorbers and/or auxiliary substances can be added to the melt and the melt can be subjected to a melt filtration before removal.
5. Process for the production of amino resin moulding materials according to Claim 4, characterised in that as ionic catalysts and/or for the neutralisation of the reaction deposit anorganic or organic acids, bases, ion exchanging resins and/or acid zeolites are used.
  6. Process for the production of amino resin moulding materials according to Claim 4, characterised in that in the first step of the process the etherification of the precondensates with C<sub>1</sub>-C<sub>8</sub> alcohols is performed in the presence of 10 to 300

mass%, in relation to the dry substance of the precondensates used, molecular sieving.

7. Process for the production of amino resin moulding materials according to Claim 4, characterised in that in the second step of the process the partial re-etherification of the C<sub>1</sub>-C<sub>8</sub>-alkyl-oxa-C<sub>1</sub>-C<sub>8</sub>-alkylene-amino-substituted triazine derivatives is performed catalytically in the presence of strong acids at temperatures in the range of 100-175°C.
8. Process for the production of amino resin moulding materials according to Claim 4, characterised in that in the second step of the process the partial re-etherisation of the C<sub>1</sub>-C<sub>8</sub>-alkyl-oxa-C<sub>1</sub>-C<sub>8</sub>-alkylene-amino-substituted triazine derivatives is performed thermally at temperatures in the range of 150-250°C.
9. Process for the production of amino resin moulding materials according to Claim 4, characterised in that in the third step of the process for the further condensation of the amino triazine ethers to polytriazine ethers mixtures of products of the 2<sup>nd</sup> step of the process of different initial products or mixtures of products of the 2<sup>nd</sup> step of the process with C<sub>1</sub>-C<sub>8</sub>-alkyl-oxa-C<sub>1</sub>-C<sub>8</sub>-alkylene-amino-substituted triazine derivatives which have not been re-etherified are used.
10. Process for the production of amino resin moulding materials according to Claim 4, characterised in that all steps of the process are performed one after the other in a reaction installation.
11. Use of amino resin moulding materials according to one or more of the Claims 1 to 3 for melt processing, in particular as melt adhesives, and for the production of plates, pipes, profiles, injection moulded components, fibres and foams as well as for processing from solution or dispersion as adhesive, impregnation resin, paint resin or laminating resin or for the production of foams, micro-capsules or fibres.

12. Amino resin products with improved flexibility, characterised in that the amino resin products are products based on amino resin moulding materials according to at least one of the Claims 1 to 3.
13. Amino resin products according to Claim 12, characterised in that the amino resin products are semifinished products produced through melt processing, preferably plates, pipes, profiles, coatings, foams or fibres or forming substances, preferably injection moulded components, or components produced from fibres according to winding, braiding or pultrusion technology and subsequent resin impregnation.
14. Amino resin products according to Claim 12, characterised in that the fillers and adsorber materials  $\text{Al}_2\text{O}_3$ ,  $\text{Al}(\text{OH})_3$ ,  $\text{SiO}_2$ , barium sulphate, calcium carbonate, glass balls, silica, mica, quartz dust, slate dust, micro hollow spheres, carbon black, talc, layer silicates, molecular sieves, stone dust, wood flour, cellulose, cellulose derivatives contained in the amino resin products are preferably as fillers layer silicates of the type montmorillonite, bentonite, kaolinite, muscovite, hectorite, fluorohectorite, kanemite, revdite, grumantite, llerite, saponite, beidelite, nontronite, stevensite, laponite, taneolite, vermiculite, halloysite, volkonskoite, magadite, rectorite, kenyaite, sauconite, boron fluorophlogopite and/or synthetic smectites and preferably as adsorber material layer silicates of the type montmorillonite, bentonite, hectorite, molecular sieves of the types A, X, Y, in particular 5A, adsorbers with a silicon base, micro hollow spheres, cellulose and/or cellulose derivatives.
15. Amino resin products according to Claim 12, characterised in that the reinforcement fibres contained in the amino resin products are anorganic fibres, in particular glass fibres and/or carbon fibres, natural fibres, in particular cellulose fibres as well as flax, jute, kenaf and wood fibres, and/or resin fibres, in particular fibres from polyacryl nitrile, polyvinyl alcohol, polyvinyl acetate, polypropylene, polyesters and/or polyamides.

16. Process for the production of amino resin products with improved flexibility, characterised in that amino resin moulding materials which consist of mixtures of meltable 20 to 1000 nuclei polytriazine ethers, wherein in the polytriazine ethers the triazine segments



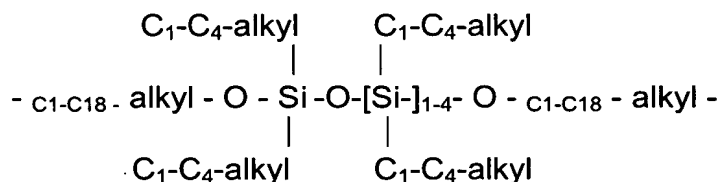
$R_1 = -NH_2, -NH-CHR_2-O-R_3, -NH-CHR_2-O-R_4-OH, -OH, \text{phthalimido-}, \text{succinimido-},$   
 $-NH-CHR_2-O-R_4-O-CHR_2-NH-, -NH-CHR_2-NH-, -NH-CHR_2-O-CHR_2-NH-,$

$R_2 = H, C_1-C_7 - \text{alkyl};$

$R_3 = C_1-C_{18} - \text{alkyl}, H;$

$R_4 = C_2-C_{18}\text{-alkylene}, -CH(CH_3)-CH_2-O-C_2-C_{12}\text{-alkylene-O-CH}_2\text{-CH(CH}_3\text{)-},$   
 $-CH(CH_3)-CH_2-O-C_2-C_{12}\text{-arylene-O-CH}_2\text{-CH(CH}_3\text{)-},$   
 $-[CH_2-CH_2-O-CH_2-CH_2]_n-, -[CH_2-CH(CH_3)-O-CH_2-CH(CH_3)]_n-, -[-O-CH_2-CH_2-$   
 $CH_2-CH_2-]_n-,$   
 $-[(CH_2)_{2-8}-O-CO-C_6-C_{14}\text{-arylene-CO-O-(CH}_2\text{)}_{2-8}-]_n-,$   
 $-[(CH_2)_{2-8}-O-CO-C_2-C_{12}\text{-alkylene-CO-O-(CH}_2\text{)}_{2-8}-]_n-,$   
 wherein  $n = 1 \text{ to } 200;$

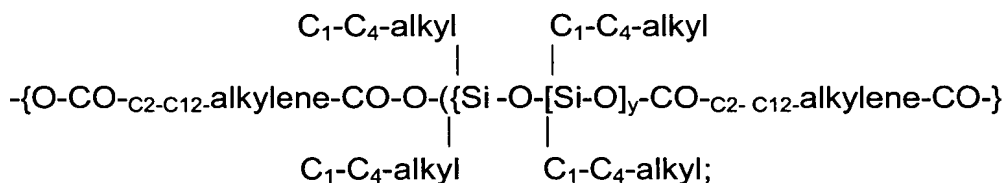
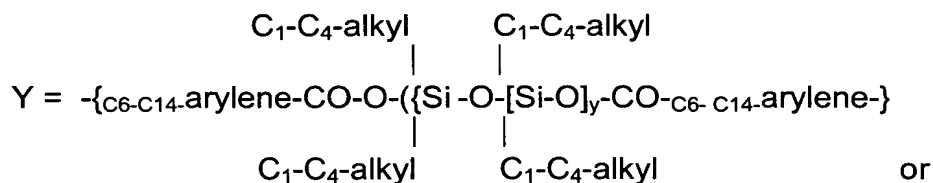
- siloxane groups containing sequences of the type



- siloxane groups containing polyester sequences of the type  $-\text{[(X)}_r\text{-O-CO-(Y)}_s\text{-CO-O-(X)}_r\text{)]-}$ ,

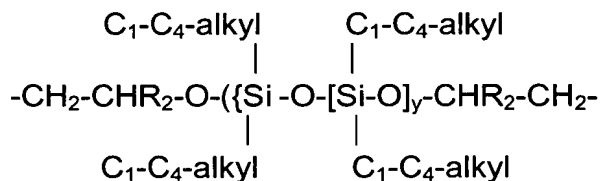
wherein

$\text{X} = \{(\text{CH}_2)_{2-8}\text{-O-CO-C}_{6\text{-C}_{14}}\text{-arylene-CO-O-(CH}_2\text{)}_{2-8}\}$  or  
 $\{(\text{CH}_2)_{2-8}\text{-O-CO-C}_{2\text{-C}_{12}}\text{-alkylene-CO-O-(CH}_2\text{)}_{2-8}\}$ ;



$r = 1 \text{ to } 70$ ;  $s = 1 \text{ to } 70$  and  $y = 3 \text{ to } 50$ ;

- siloxane groups containing polyether sequences of the type



wherein  $\text{R}_2 = \text{H}$ ;  $\text{C}_1\text{-C}_4\text{-alkyl}$  and  $y = 3 \text{ to } 50$ ;

- sequences based on alkylene oxide adducts of melamine of the type  
 2-amino-4,6-di- $\text{C}_{2\text{-C}_4}$ -alkylene-amino-1,3,5-triazine sequences:

- phenolic ether sequences based on bivalent phenols and C<sub>2</sub>-C<sub>8</sub> diols of the type

-C<sub>2</sub>-C<sub>8</sub>-alkylene-O-C<sub>6</sub>-C<sub>18</sub>-arylene-O-C<sub>2</sub>-C<sub>8</sub>-alkylene sequences;

are combined through bridging members -NH-CHR<sub>2</sub>-O-R<sub>4</sub>-O-CHR<sub>2</sub>-NH- und -NH-CHR<sub>2</sub>-NH- and optionally -NH-CHR<sub>2</sub>-O-CHR<sub>2</sub>-NH- to 20 to 1000 nuclei polytriazine ethers with linear and/or branched structure,

wherein in the polytriazine ethers the molar ratio of the substituents is R<sub>3</sub> : R<sub>4</sub> = 20 : 1 to 1 : 20,

the proportion of the combinations of the triazine segments through bridging members -NH-CHR<sub>3</sub>-O-R<sub>4</sub>-O-CHR<sub>3</sub>-NH- is 5 to 95 mol%,

and wherein the amino resin moulding materials can contain up to 75 mass% fillers and/or adsorber materials, up to 50 mass% further reactive polymers of the type ethylene copolymers, maleic acid anhydride copolymers, modified, maleic acid anhydride copolymers, poly(meth)acrylates, polyamides, polyesters and/or polyurethanes, up to 20 mass% diols of the type HO - R<sub>4</sub> - OH, and up to 2 mass% stabilisers, UV absorbers, hardening agents and/or auxiliary substances,

are melted in continuous kneaders at mass temperatures of 105 to 260°C and standing times of 2 to 12 min and with hardening of the polytriazine ethers according to usual processing methods for thermoresin polymers

A) placed as a melt on a smoothing device and taken out as a plate by means of conveyor belts and cut or sealed on surface guides made from metallised films, synthetic films, paper guides or textile guides and removed and processed as multicomponent composites,

or

B) taken out via a profiled opening and removed, cut and processed as a profile or plate material,

or

C) taken out via an annular opening, removed with pressing of air as a pipe, removed, cut and processed,

or

D) after dosing of blowing agents removed taken out via a wide slot opening and removed as a foamed plate material,

or

E) taken out via the wide slot opening of a pipe coating installation and sealed in a fusible manner onto the rotating pipe,

or

F) processed into injection moulded components in injection moulding machines, preferably with three zone worms with a worm length of 18 to 24 D, high injection speeds and with tool temperatures of 70 to 150°C,

or

G) extruded in melt spinning installations by means of melt pump through the capillary tool into the blow shaft and taken out as threads or after the melt-blow process separated off as fibres or after the rotation spinning process taken out as a melt into a shear field chamber with organic dispersing agents with the formation of fibre fibrilles and further processed in subsequent devices,

or

K) used for the melt impregnation of component blanks produced according to the winding process, braiding process or pultrusion process,

and optionally for complete hardening the products are subjected to subsequent thermal processing at temperatures of 180 to 280°C and standing times of 20 to 120 min.

17. Process for the production of amino resin products according to Claim 16, characterised in that the polytriazine ethers contained in the amino resin moulding materials used are 30 to 300 nuclei polytriazine ethers.

18. Process for the production of amino resin products with improved flexibility according to Claim 16, characterised in that the polytriazine ethers contained in the amino resin moulding materials used are polytriazine ethers with  $R_2 = H$ .

19. Process for the production of amino resin products with improved flexibility according to Claim 16, characterised in that the hardening agents contained in the amino resin moulding materials used are weak acids of the type

- blocked sulphonic acids,
  - aliphatic C<sub>4</sub>-C<sub>18</sub> carbonic acids,
  - alkali salts or ammonium salts of phosphoric acid,
  - C<sub>1</sub>-C<sub>12</sub> alkyl esters or C<sub>2</sub>-C<sub>8</sub> hydroxyalkyl esters of C<sub>6</sub>-C<sub>14</sub> aromatic carbon acids or anorganic acids,
  - salts of melamine or guanamines with C<sub>1</sub>-<sub>18</sub> aliphatic carbonic acids,
  - anhydrides, semi-esters or semi-amides of C<sub>4</sub>-C<sub>20</sub> dicarbonic acids,
  - semi-esters or semi-amides of copolymers of ethylenically unsaturated C<sub>4</sub>-C<sub>20</sub> dicarbonic acid anhydrides and ethylenically unsaturated monomers of the type C<sub>2</sub>-C<sub>20</sub> olefines and/or C<sub>8</sub>-C<sub>20</sub> vinyl aromates,
- and/or
- salts of C<sub>1</sub>-C<sub>12</sub>-alkyl amines or alkanol amines with C<sub>1</sub>-C<sub>18</sub> aliphatic, C<sub>6</sub>-C<sub>14</sub>-aromatic or alkyl aromatic carbonic acids as well as anorganic acids of the type hydrochloric acid, sulphuric acid or phosphoric acid.

20. Process for the production of amino resin products according to Claim 16, characterised in that the production of fibre fibriles from the amino resin moulding materials is effected through

- introducing the melt via entry openings at melt temperatures of 160 to 220°C into a shear field chamber which contains high boiling organic dispersion agent heated to 150 to 210°C, preferably paraffin oil or engine oil, wherein acid gases, preferably chlorohydrogen or sulphur dioxide are introduced into the shear field chamber, and wherein the melt stream leaving the entry opening is extended and divided through the oil whirled about by the rotor with the formation of fibres,



- conveyance of the dispersion of the fibre fibrilles formed in organic dispersion agent into a sieve separator with simultaneous extraction of the high boiling dispersion agent with low boiling hydrocarbons, preferably hexane or heptane,
  - removal of the fibre fibrille short fibre fleece and optionally subsequent thermal treating of the short fibre fleece at temperatures of 180 to 210°C and standing times of 40 to 120 min.
21. Use of amino resin products with improved flexibility according to one or more of the Claims 12 to 15 for applications with high requirements of non-flammability and heat resistance in construction, engineering and the motor car industry, in particular in the form of foam plates as isolation components, in the form of plates as panelling elements, in the form of pipes and hollow profiles in ventilation technology, in the form of injection moulded components as functional components and in the form of fibres in particular for the production of electro-isolation papers, fire protection clothing, clothing for high working temperatures, fire protection blankets, filter fleeces, felts for paper machines and vehicle and machine isolation covers, as well as in the form of complex components, containers or profiles according to the winding, braiding or pultrusion process.